## REMARKS/ARGUMENTS

These remarks are made in response to the Office Action of April 25, 2008 (Office Action). This response is concurrently filed with a Petition for Two-Month Extension of Time. The Office is expressly authorized to charge the appropriate fees to Deposit Account 50-0951. Claims 1, 3-11,. 13-21, and 23-30 are currently pending. No new matter has been added.

The Office Action objects to claims 21 and 23-30 for lack of support for the term computer readable storage. Applicants respectfully disagree but in the interest of advancing the prosecution, the specification has been amended based on the support found in the claims, which should obviate this objection.

In the Office Action, Claims 1, 11, and 21 were rejected under 35 U.S.C. § 103(a) as being anticipated by U.S. Patent No. 6,446,038 to Bayya et al. (hereinafter Bayya) in view of U.S. Patent No. 7,164,771 to Treurniet, et al. (hereinafter Treurniet). Claims 1, 11 and 21 each include the features of recording a speaker's voice directly from a human, generating a voice signal based on the speaker's voice, and processing the voice signal using an auditory model. The Office Action concedes that Bayya does not disclose the use of an auditory model but asserts that it would have been obvious to modify Bayya to include this feature for the purpose of better estimating how the signal will be perceived. Applicants respectfully assert that Bayya fails to disclose each of the above-described features and teaches away from their use.

Bayya is directed towards evaluating signals sent over communications networks, such as telephone systems. Bayya is very clear that its system is intended to only utilize an output speech signal from such a network:

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> It is thus a general object of the present invention to provide a new
> and improved method and system for objectively measuring speech
> quality based on an output speech signal only. (Bayya col. 1, lines
> 58-61).

The Bayya system only utilizes already corrupted output signals from such
communications networks because of a lack of access to input voice signals and a desire
to avoid using input-to-output measurements:

> Many known algorithms base quality estimates on input-to-output
> measures. That is, speech quality is estimated by measuring the
> distortion between an "input" and an "output" speech record, and
> using regression to map the distortion values into estimated quality.
> However, in a realistic environment, access to a clean/uncorrupted
> input signal is not possible. Therefore, objective measures should
> be based only on the available corrupted output signal. Output-
> based measures are useful in applications when we only know the
> received speech record and there is no way to know the source
> speech record, for example, as in monitoring cellular telephone
> connections to ensure they maintain adequate performance. (Bayya
> col. 1, lines 58-61)(emphasis added).

One of ordinary skill in the art would not modify Bayya to utilize input signals including
the claimed features of recording a speaker's voice directly from a human, generating a
voice signal based on the speaker's voice, and processing the input voice signal using an
auditory model, particularly where Bayya specifically states to utilize "only" corrupted
output signals with its system.

Moreover, Applicants respectfully submit that the methods of Treurniet are not
directly combinable with the methods in Bayya, and one of ordinary skill in the art would
not modify Bayya to process a voice signal based on an auditory model. In particular,
Treurniet does not disclose or suggest a system or method for evaluating a speech signal

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based on any type of speech reference vectors. Instead, Treurnient requires a reference version of the speech being analyzed. That is, both the analyzed and target speech signal in Treurniet are the same speech. (See, e.g., FIGs. 1, 2, 2B, and accompanying text.) Such an assertion is further supported by Treurniet's references to comparing processed and unprocessed signals. (See, e.g., Col. 2, lines 19-26; Col. 4, lines 35-39.) Accordingly, the auditory models of Truerniet are not configured for evaluating quality based on baseline reference vectors, but are instead configured to provide a measure of differences in measures for the target voice signal.

In contrast, the claims recite the limitation that the analysis of the received speech is based *not* on comparison of different versions of the same speech, but rather recite an analysis based on identifying attributes of received speech. That is, once the received speech is processed using an auditory model, specific features in the speech, not the transmission, which are characteristic of the speaker and not of the speech, are identified and measured. These identified characteristics, i.e. voice attributes, can then be compared to an objective baseline model for voice attributes and a relative measure of the quality of the speaker's voice can be provided, irrespective of the content of the speech or the method or quality of the transmission. Thus, the method and system recited in the claims can be used with any voice signal received from any speaker to determine a measure of voice quality of the speaker.

Claims 3-5, 13-15, and 23-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bayya in view of Treurniet in further view of Non-Patent Literature "Some Waveform and Spectral Features of Vowel Roughness" by Deal, et al. (hereinafter Deal). These claims depend from claims 1, 11 and 21, respectively. For the reasons

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described above, these claims are patentable over Bayya and Treurniet. Deal does not make up for the deficiencies in the cited art.

Claims 6-10, 16-20, and 26-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bayya in view of Treurniet in further view of Non-Patent Literature "Acoustic Correlates of Breathy Vocal Quality" by Hillenbrand, et. al (hereinafter Hillenbrand). These claims depend from claims 1, 11 and 21, respectively. For the reasons described above, these claims are patentable over Bayya and Treurniet. Hillenbrand does not make up for the deficiencies in the cited art.

## CONCLUSION

Applicants believe that this application is now in full condition for allowance, which action is respectfully requested. Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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